

RADIOTHERAPY

PAPER – IV

RTH/APRIL/16/41/IV

Time : 3 hours

Max. Marks : 100

Important instructions:

- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

Write short notes on:

1. a) Principle and application of PET scan in Oncology. (2+3)+5
b) Its current status based on evidence in literature for radiation treatment planning of lung cancer.
2. a) Process of treatment planning with electrons. 6+4
b) Enumerate the sites where it is regularly used, if available.
3. a) Enumerate the various acceptance tests done before commissioning a linear accelerator for patient treatment. 5+5
b) Limits and tests for determining beam flatness and beam symmetry.
4. a) Define GTV, CTV, ITV & PTV. 4+6
b) Enumerate the salient features of ICRU 50 and 62.
5. a) What is Stereotactic Body Radiotherapy (SBRT)? 3+7
b) Enumerate the sites in which SBRT has a role and why?
6. a) What is dose volume histogram (DVH)? 2+3+1+4
b) How is it computed?
c) What are its pitfalls?
d) Give one example of how you would interpret/utilize DVH.
7. a) What is gating in radiotherapy? 3+7
b) Where is it used and how?
8. a) What is Adaptive Radiotherapy? 3+3+4
b) In which sites has it been used?
c) What are its problems and limitations?
9. a) What is the radiobiological basis of hypofractionated RT (HFRT)? 4+6
b) Enumerate the sites in which HFRT is being used along with its evidence.
10. a) Enumerate the emergencies in oncology. 2+(2+2+2+2)
b) Indications, dose schedules technique and results of radiation therapy for spinal cord compression treatment in malignancy.
